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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,595	09/18/2003	Elliott Malcolm Philofsky	ACR-0301	8539

7590 06/02/2005

Law Office of Dale B. Halling, LLC  
Suite 311  
24 South Weber Street  
Colorado Springs, CO 80903

EXAMINER
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THOMAS, ERIC W

ART UNIT	PAPER NUMBER
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2831

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

10/666,595

Applicant(s)

PHILOFSKY, ELLIOTT MALCOLM

Examiner

Eric W. Thomas

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7,9-13,21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-13,21 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## INTRODUCTION

The examiner acknowledges, as recommended in the MPEP, the applicant's submission of the amendment dated 3/11/05. At this point, claims 1, 4-6 have been amended; and claim 8 has been cancelled. Thus claims 1-7, 9-13, 21-22 are pending in the instant application.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

[illegible]

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the dielectric layer of Akram et al. using the dielectric material of Duncombe et al., since such a modification would provide the capacitor with a material having a high dielectric constant, wherein said high dielectric constant material can be applied at a low temperature.

Regarding claim 2, Duncombe et al. teach that the BCTZ contains 100 atoms of Ba for every 0 atoms of Ca (see col. 3 lines 61-63).

Regarding claim 4, Duncombe et al. teach that the BCTZ layer is applied at a temperature of less than 450 degrees C.

Regarding claim 5, Akram et al. disclose the second nickel electrode is electrically connected to a second aluminum lead (16) on the integrated circuit.

Regarding claim 6, Akram et al. disclose the second nickel electrode is a base for solder (14) bump. Regarding the limitation, "solder to be reflowed to form the bump" is a method of forming the device. The method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight. In re STEPHENS, WENZL, AND BROWNE, 145 USPQ 656 (CCPA 1965).

Regarding claims 7, Akram et al. disclose a capacitor for an integrated circuit comprising a first nickel electrode (34) coupled to an aluminum electrical lead (16) of the integrated circuit, a dielectric (38) applied to the first nickel electrode; and a second nickel electrode (36) applied to the dielectric and electrically attached to a second electrical lead of the integrated circuit (16).

Akram et al disclose the claimed invention except for the dielectric is formed from BCTZ.

Duncombe et al. teach that BCTZ is a known ceramic material used in the capacitor art (see col. 3 lines 40-65).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the dielectric layer of Akram et al. using the dielectric material of Duncombe et al., since such a modification would provide the capacitor with a material having a high dielectric constant, wherein said high dielectric constant material can be applied at a low temperature.

Regarding claim 9, Akram et al. disclose a portion of the second nickel electrode is deposited on a passivation layer of the integrated circuit.

Regarding claim 10, Akram et al. disclose an insulator (28) applied to an edge of the dielectric (see fig. 1E).

Regarding claim 11, Akram et al. disclose the insulator is applied to a portion of the first nickel electrode (see fig. 1E).

Regarding claim 12, Akram et al. disclose the claimed invention except for a layer of aluminum is applied over the second nickel electrode. Akram et al. disclose a terminal contact (30) applied over the second nickel electrode. Akram et al. disclose the terminal contact is formed from a metal material. Aluminum is a metal material. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the terminal contact from an aluminum material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 13, Akram et al. disclose a wire lead is attached to the layer of aluminum (paragraph 63).

Regarding claim 21, Akram et al. disclose a capacitor for an integrated circuit comprising a first electrode (34) electrically connected to an aluminum lead (16) of the integrated circuit and applied on a passivation layer (18) of the integrated circuit, a dielectric (38) adjacent to the first electrode, and a second electrode adjacent to the dielectric, and a second electrode (36) adjacent to the dielectric.

Akram et al disclose the claimed invention except for the dielectric is formed from BCTZ.

Duncombe et al. teach that BCTZ is a known ceramic material used in the capacitor art (see col. 3 lines 40-65).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the dielectric layer of Akram et al. using the dielectric material of Duncombe et al., since such a modification would provide the capacitor with a material having a high dielectric constant, wherein said high dielectric constant material can be applied at a low temperature.

Regarding claim 22, Akram et al disclose the first electrode is nickel.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duncombe et al. (US 2002/0066919) in view of Takemura et al. (US 5,220,482) and Horikawa et al. (US 6,015,989).

Duncombe et al. disclose in fig. 1, a capacitor comprising a first electrode (122) electrically connected to a first lead (116 – wiring layer functions as a lead) of an integrated circuit (paragraph 2), a dielectric covering a side of the first electrode and a second electrode (126) sandwiching the BCTZ layer (see paragraph 26 –  $\text{ABO}_3$ )

Duncombe et al. disclose the claimed invention except of the first and second electrode is formed from a nickel material and the first lead is formed from aluminum.

Takemura et al. teach that it is known in the capacitor art to form electrodes from a nickel material (col. 5 lines 10-20).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the capacitor of Duncombe et al. using nickel electrodes as taught by Takemura et al, since such a modification would provide the electrodes with a low cost material having good electroconductivity.

Horikawa et al. teach that it is known in the art to form wiring layers (lead) from an aluminum material.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the lead of Duncombe et al. using an aluminum as taught by Horikawa et al., since such a since such a modification would provide a lead with a low cost material having good electroconductivity.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duncombe et al. (US 2002/0066919), Takemura et al. (US 5,220,482) and Horikawa et al. (US 6,015,989) as applied to claim 1 above, and further in view of Ogasawara et al. (US 6,743,518).

Duncombe et al. disclose the claimed invention except for the BCTZ contains eighty two to ninety atoms of titanium for each ten to eighteen atoms of zirconium.

Ogasawara et al. teach that it is known in the art to form an ABO<sub>3</sub> dielectric from a BCTZ material that contains eighty-five of titanium for fifteen atoms of zirconium.



It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the capacitor of Dumcombe et al. using an ABO<sub>3</sub> dielectric from a BCTZ material that contains eighty-five of titanium for fifteen atoms of zirconium as taught by Ogasawara since such a modification would provide a reliable dielectric material having a high dielectric constant.

### ***Response to Arguments***

6. Applicant's arguments, see pages 5-6, filed 3/11/05, with respect to the rejection(s) of claim(s) 1-7, 9-13, 21-22 under 35 USC § 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Akram et al. (US 2004/0238957) in view of Duncombe et al. (US 6,525,427); and Duncombe et al. (US 2002/0066919) in view of Takemura et al. (US 5,220,482) and Horikawa et al. (US 6,015,989).

7. Applicant's arguments with respect to claims 1-7, 9-13, 21-22 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric W. Thomas whose telephone number is 571-272-1985. The examiner can normally be reached on Monday - Friday 5:30 AM - 2:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ewt

 5-26-05  
**ERIC W. THOMAS**  
**PRIMARY EXAMINER**